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MAMMALIA

COMPILED BY

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J. E. HILL

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18. MAMMALIA

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Opinion 530. Validation under the Plenary Powers of the generic names *Elaphella* Bezzi, 1913 (Class Insecta, Order Diptera) and *Lophiotherium* Gervais, 1850 (Class Mammalia). Opin. int. Comm. zool. Nom. **19** : 333-348.

Direction 98. Interpretation under the Plenary Powers of the nominal species *Vespertilio murinus* Linnaeus, 1758, and insertion in the Official List of Generic names in Zoology of a revised entry relating to the generic name *Vespertilio* Linnaeus, 1758, (Class Mammalia). (*Direction* supplementary to *Opinion* 91). Opin. int. Comm. zool. Nom., **1F** (9) : 127-160.

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Anon. (2). Angus Herdman Booth (1927-1958). Bull. Inst. franç. Afr. N. **20A** : 1087-1088.

Anon. (3). Observation on the Indian buffalo and its shikar. J. Bengal. nat. Hist. Soc. **29** : 68-80.

Anon. (4). The animal lore of the past: two medieval bestiaries. Nat. Hist. N.Y. **67** : 558-567, illustr.

Anon. (5). Naissances de *Rhinoceros unicornis* en captivité. Terre et la Vie **105** : 220-221.

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Anon. (14). Species in danger of extinction. Rep. Kenya Wildl. Soc. 1957 [1958] : 68-70.

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Psychology and Behaviour Studies.—General account of behaviour, **Scott, J. P.**; Summary of behaviour studies, **Herter (2)**; Sociology in primates, **Carpenter**; Concept formation in chimpanzee, **Kelleker**; Hand preference in gorilla, **Haas (1)**; Development of affection in infant macaque, **Harlow & Zimmermann**; Instinctive behaviour in capuchin, **Nolte**; Behaviour of *Didelphis*, **Thomas, L.**; Behaviour and habits of *Blarina* in captivity, **Rood (1)**; Social behaviour of enclosed rabbit colonies, **Myers & Mykytowycz**; Social behaviour of rabbits in experimental colony, **Mykytowycz (2)**; Territorial behavior in *Ochotona*, **Kilham (1)**; Behaviour of Scottish and Hebridean voles, **Godfrey (1)**; Status and hierarchy in caged rats, **Grant & Chance**; Electric shock threshold of rats, **Green, R. T.**; Exploratory behaviour of rats, **Williams, C. D.**; Social behaviour of caged wild rats, **Barnett (1)**; Exploration and avoidance of unfamiliar objects ("neophobia") in rats, **Barnett (3)**; Behaviour of *Rattus* in Heligoland, **Vauk**; Behaviour of *Mastomys* in laboratory conditions, **Veenstra**; Aggressive behaviour related to population density in mice, **Davis, D. E.**; Behaviour study in adults and young of *Peromyscus*, **King**; Behaviour of *Peromyscus nuttalli*, **McCarley**; Behaviour study of marmots, **Koenig**; Behaviour of *Cynomys*, **Smith, R. E.**; Behaviour of captive *Gerbillus*, **Kirschhofer**; Breeding behaviour of Weddell seal, **Mansfield**; Behaviour of brown hyaena in captivity, **Lang**; Comparative learning behaviour in dogs, **Freedman**; Sensory learning in cats reared in darkness, **Weiskrantz**; Behaviour of red fox, **Vincent**; Learning ability of raccoon, **Thackray & Michels**; Bear and fox in same pen, **Curry-Lindahl (2)**; Social behaviour of *Cervus elaphus* in Switzerland, **Burckhardt (2)**; Behaviour of moose, **De Vos**; Behaviour development in young moose, **Altmann**; Social behaviour in American bison, **McHugh**; Adult-young relationship in Camargue cattle, **Schloeth (1)**; Intercommunication, behaviour in Camargue cattle, **Schloeth (2)**; Behaviour of *Capra caucasica* in captivity, **Petzsch & Witstruck**; Sex behaviour of castrated cats, **Rosenblatt & Aronson (2)**; Fighting and mating behaviour in antelopes, **Walther**; Rutting behaviour in four-horned antelope, **Shull**; Learning ability

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Migrations and Homing.—Homing ability in *Myotis*, **Cope & others**; Homing in *Eptesicus*, **Smith & Goodpaster**; Homing of *Eptesicus fuscus*, **Hall & Davis**; Migration of *Tadarida brasiliensis*, **Glass (1)**; Homing ability of *Apodemus*, **Anon (6)**; Bachelor seals returning to native rookeries, **Nagasaki & Matsumoto**; Grey seal movements, **Lockley**; Seasonal migration of *Saiga*, **Bannikov (4)**.

Home Range and Territory.—Small mammals in New York, **New**; Range of small mammals in Oklahoma, **Hays (1)**; Home range and territory of Kansas mammals, **Fitch**; Home range of *Ammospermophilus*, **Hawbecker**; Territoriality of Scottish and Hebridean voles, **Godfrey**; Range of movement in Malayan rats, **Harrison, J. L. (1) (2)**; Home range and territory in *Apodemus*, **Miller, R. S. (1)**; Home range of *Peromyscus* in Arkansas, **Redman & Sealander**; in Mexico, **Drake**; Home range of *Peromyscus nuttalli*, **McCarley**; Home range of *Ondatra* in Germany, **Ernst**; Territorial marking by marmots, **Koenig**; Territorial behaviour of rhinoceros in Africa, **Ripley**; Urine and excrement as territorial marker of white rhinoceros, **Micha**.

Population Studies.—Population dynamics of Swedish fauna, **Curry-Lindahl (1)**; Population study in Altai steppes, **Tupikova & others**; Small mammal population colonisation of reclaimed Dutch polders, **Wijngaarden & Lensink**; Census methods in Siberia, **Reimers**; Small mammal population study in Rumanian forestry plantations, **Ausländer & Hellwing (1)**; Problems of mapping distribution, **Fedyushina**; Live-trapping study of *Trichosurus*, **Dunnet (1)**; Population study of *Potorous*, **Isodon (= Thylacis)** in Tasmania, **Guiler (2)**; Bat population of Suffolk caves in winter, **Gilbert & Stebbings**; Population composition of *Myotis* colony, **Cope & others**; Population density of *Sorex* in Michigan, **Verme**; Population sight estimates for rabbits,

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Conservation.—Scientific basis and aims of conservation, **Worthington**; Conservation and African ungulate fauna, **Fraser Darling**; Plea for protection of predators, **Hainard**; Conservation in semi-arid regions, **Villers et al.**; Conservation in Roumania, **Saulescu**; Status and protection of rare Indian mammals, **Gee** (2); Conservation in Africa, **Grzimek** (1); Quicama Nature Reserve, Angola, **Frade** (1); Large mammals of Garamba National Park, **Verschuren** (1); Serengeti Report, **Bigalke** (3); Game reserves in Sudan, **Nabi**; E. African game management problems and proposals, **Anon** (13); Conservation on Sao Tomé and Principe Is., **Frade** (3); Faunal study in Belgian Congo, **Pirlot** (1); Census techniques for African Ungulata, **Bourlière**; Game in Transvaal, **Kettlitz**; Causes of

numerical reduction of ungulata in Kenya, **Cowie**; Animals threatened with extinction in Kenya, **Anon** (14); Faunal protection in S. Sahara, **Villiers**; Conservation of ungulates in French West Africa, **Dekeyser** (3); Status and conservation of African ungulates, **Dorst** (2); in Nigeria, **Taylor**; Status of ungulates in Togoland, **Baudenon** (2); French Equatorial Africa, **Blancou** (4); French African Territories, **Bourgoin**; French Cameroons, **Jeannin & Barthe**; Southern Rhodesia, **Fraser, A. D.**; Union of South Africa, **Knobel**; Portuguese Guinea, **Sa E Melo Cristino**; Serengeti National Park, **Swynnerton**; Status and conservation of ungulates in Uganda National Parks, **Bere** (1); South West Africa, **Bigalke** (5); Northern Rhodesia, **Grimwood & others**; Belgian Congo, **Verschuren** (2); Conservation in French Equatorial Africa, **Bonotte**; Conservation in N. America, **Lincoln**; Faunal protection and grazing use in U.S.A., **Swift**; Wildlife in Tucson Mountain Park sanctuary, **Walker, L. W.**; Conservation in N. Mexico, **Baker** (2); Conservation in N. Mexico, **Baker** (1); Faunal protection in Argentine and Paraguay, **Tour**; Faunal preservation in Southern Andes, **Tour & Finsterbusch**; Status and conservation of Madagascan Lemuridae, **Petter & Petter-Rousseaux**; Protection of hibernating bats in Limburg, **Horst & Nieuwenhoven**; Status and conservation of New South Wales marsupials, **Marlow** (3); *Eubalaena* in N. Pacific, **Omura** (1); Plea for whale protection, **Klumov** (3); Status of Scandinavian carnivores, **Quarles**; Status of *Lynx* in Roumania, **Witting**; *Canis lupus* in Germany, **Tratz** (2); Conservation of sea-otter, **Barabash-Nikiforov**; Status of Pinnipedia, **Scheffer** (1); Seal conservation in S. Georgia, **Bonner** (1); Fur seal re-established on Macquarie Island, **Csordas**; Present status of Rhinocerotidae, **Grzimek** (4); Conservation and status of white rhinoceros, **Micha**; White rhinoceros census and status in Uganda, **Heppes** (1); Status of mountain zebra, **Anon** (12); Elephant control in Tanganyika, **Lamprey**; Knysna Forest elephants, **Hey & Brand**; **Woods, D. H.**; Reduction of elephant population in Ceylon, **Morgan-Davies**; Protection of elephant in Ceylon, **Soysa**; Control and capture of elephants in Ceylon, **Wienman**; Need for census of elephants in

Ceylon, **Williams, J. H.**; Ungulates of Uganda National Parks, **Bere** (2); Red deer in Swiss National Park, **Bopp** (1); Rediscovery of Mesopotamian fallow deer, **Haltenorth** (3); Management of *Odocoileus* in California, **Taber & Dasmann**; Status and hunting of introduced reindeer in S. Georgia, **Bonner** (2); Status of caribou in Ungava, **Banfield & Tener**; Status and protection of *Capri-cornis* in Japan, **Pohl**; Status of musk ox in E. Greenland, **Vibe**; Arctic Canada, **Tener**; Protection of giant sable antelope in Angola, **Frade** (2); Preservation of the bontebok, **Bigalke** (1); Status and protection of lechwe in N. Rhodesia, **Dorst** (1).

Extermination.—Extermination of certain mammals, **Caram & Petter**; Threatened species in N. Mexico, **Baker** (1) (2); Extinction of Australian marsupials not due to placental competition, **Storr**; Marsupials presumed extinct in New South Wales, **Marlow** (3); Status of thylacine, **Guiler** (1); Reported rediscovery of thylacine, **Guiler & Meldrum**; History of beaver in Illinois, **Pietsch**; History of extinction of beaver in Caucasus, **Vereshchagin & Burchak-Abramovich**; Extermination of wolves in Rhineland, **Schmidt, Th.**; Gradual extermination of one-horned rhinoceros and water buffalo in India, **Sheppard**; History of Graham Island caribou, **Dickie**; *Sus scrofa*, *Cervus nippon* extirpated on Quelpart Island, **Won & Woo, H. C.**

Naturalisation.—Mammals introduced to Palestine, **Bodenheimer**; Naturalization of furbearers in USSR, **Skrobov**; Exotic and native fauna in Australia, **Storr**; Rabbit in New Zealand, **Fennessy**; Muskrat introduction to Caspian region, **Siroechkovski**; Muskrat in Limburg, **Wijngaarden** (3); History and distribution of muskrat in Luxembourg, **Heurtz**; Review of distribution, bibliography of *Ondatra* in Roumania, **Calinescu & Bunesu**; Re-introductions of beaver in Illinois, **Pietsch**; *Panthera leo persica* introduced to Chandraprabha Sanctuary, **Gee** (2); Bali tiger possibly a Javan introduction, **Meissner**; African wild ass in mediaeval Spain and Portugal, **Fernandez-Galiano**; Introduced reindeer of S. Georgia, history, **Bonner** (2); History of deer introduced to New Caledonia, **Barrau & Devambez**; Intro-

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Domestication.—Domesticated animals of Africa, **Boettger**; Remarks, illustrations of Caucasian sheepdogs, **Schneider** (2); Dogs employed by man, **Lineham**; Training Saghalien dogs for Antarctic sledge work, **Inukai & Haga**; Origin of domestic dog, **Colbert**; Elephants captured in Burma, 1952–1957, **Yin**; Elephant training and use in India, **Chaturvedi**; Ancient domestication of elk in Siberia, **Skalon & Khoroshikh**; Reindeer herding in Lapland, **Manker**; Review of indigenous African cattle, **Faulkner & Epstein**; Gradual disappearance of certain domestic animals, **Koch**; Breeding of domestic animals, **Pshenitzki**.

Economics: General.—Animal products, **Brune**; Bats in insect control, **Ali & Santapan** (1); Economic importance of opossum in New York, **Hamilton** (1); Damage to pines by local mammals and control in Victoria, **McNally**; Rodent destruction of seed and tree seedlings, **Ashby**; Squirrel damage to forestry, **Shorten**; Crop damage by jackrabbit, **Bronson & Tiemeier**; Vole damage to trees, **Hook**; Sealing in S. Georgia, **Bonner** (1).

Economics: Rodent and Pest Control.—Baboon trap, **Fitzsimons**; Rodent control in Holland, **Anon.** (7); Rodent plague centres in USSR, **Fenyuk**; Rodent control in Roumania, **Marches**; Rabbit control in New Zealand, **Fennessy**; Rabbit fumigants, **Gleeson & Maguire**; Furrow-poisoning rabbit techniques, **Carrick** (2); Poisoning tests on wild rabbits, **Lazarus**; Poisoning of rabbits with sodium fluoroacetate ("1080"), **Rowley** (6); Rabbit poisoning techniques, **Rowley** (4); Biological control of field voles in orchards, **Wijngaarden** (2); Rabbit damage prevented by aluminium foil, **McCabe & Keith**; Vole plague in Stirlingshire, **Charles**; Baits and poisons for control of *Microtus*, **Wachtendorf**; Control of *Rattus rattus* in Hertfordshire, **Davis & Lloyd-Evans**; Mediaeval German rat catching and rat "fables," **Spanuth**; Ant interference with grain used to control *Citellus*, **Timofeyev**.

Economics: Fur and Wool.—Fur farming in France, **Villemin**; Early fur statistics from N.W. America, **Beidleman**; Management of muskrat in Nebraska, **Sather**; Chinchilla farming in Britain, **Street**; History of chinchilla, **Eckardt**; Beaver in Illinois, **Pietsch**; Economic development of sea-otter, **Barabash-Nikiforov**; History of kolinsky industry, **Bromlei**; Mink farming in Netherlands, **Rab**; Canadian early muskox fur returns, **Tener**.

Economics: Whaling.—General account of whales and whaling, **Slijper** (1); **Budker** (1); National interests in Antarctic whaling, **Elliot**; Summary of whaling development and present situation, **Bettum**; Review of *Eubalaena* in N. Pacific, **Omura** (1); Whaling and world whaling fleets, **Rivoire**; 1946–1957 catch of fin and sei whales off Norway and Faroes, **Jonsgård**; Analysis of catch (1949–1956) of southern stocks of humpback whale, **Chittleborough** (2); Whaling statistics 1955–56, 1956–57, **Jahn & others**; Japanese whaling operations 1956–1957, **Miyazaki** (2); 1948–1957 catch of killer whales in Japanese coastal waters, **Nishiwaki & Handa**; 1957 catch of small whales in North and Barentz Seas, **Ostby**; Incidental catch (1920–1955) of common porpose in Baltic, **Ropelewski**; Antarctic whale marks recovered 1957–58, **Brown, S. G.** (2); Observations of whales in Indian Ocean, **Brown, S. G.** (1); Whaling control, 1958–59, **Anon** (1); Whaling in Antarctic, **Cockrill**; Whaling technique in Azores, **Clarke**; Fin-whaling in E. China Sea, **Miyazaki** (1); Whaling and whaling grounds in N. Pacific, **Uda & Suzuki**.

Methods and Technique: General.—Tracks of Siberian mammals, **Marikovski**; Identification of spoor of E. African game, **Hesse**; Observing technique for small mammals, **Southern** (1); Field study of British bats, **Blackmore**; Field study of Scottish mountain hare, **Hewson** (2); Field study of British carnivores, **Linn**; Field observation of British deer, **Page**; Field enclosures for study of wild rabbits, **Rowley** (3); **Myers** (2); Mark-recapture experiments on Malayan rats, **Harrison, J. L.** (2); Air census of Uganda elephants, **Buechner**; Census techniques for African Ungulata, **Bourlière**; Native "calling" and capture

of monkeys, **Tappen**; Transport of live platypuses, **Fleay** (2); Narcosis for live capture of kangaroos, **Marlow** (2); Improved live trap, **Lobue & Darnell**; Relative efficiency of small mammal traps, **Sealand & James**; Comparative efficiency of two types of small mammal trap **Pruit & Lucier** (1); Preparation of museum study skins, **Szunyoghy**; Synthetic fibre filling for small mammal skins, **Justice & Schal-dach**; Cellophane protection for skulls attached to museum skins, **English**; Sub-fossil bones and archaeology, **Ryder** (3).

Methods and Technique: Marking.—Use of radiiodine as indicator of feeding activity, **Carriek** (1); Dyes for use in rat movement studies, **Larthe**; Reflective tape for marking nocturnal mammals, **Ealey & Dunnet**; Dye technique for home range studies, **New**; Bat ringing in Netherlands, **Wijngaarden & Schuilenburg**; Bat-banding in Croatia, **Djolic** (1); Bat ringing in Germany, **Bopp** (2); Trapping and marking techniques for *Setonix*, **Dunnet** (3); Individual marking of rabbits by fur dye, **Rowley** (2); Grey seal marking in W. Wales, **Lockley**; Ringing marten, **Parovschikov**; Bells as aid to movement study of deer, **Jordan**.

DISTRIBUTION AND FAUNAS PALAEARCTIC REGION

Lehmann (2) (4); Mapping distribution, **Fedyushina**; U.S.S.R. and W. Europe, **Larina**.

Europe: General.—**Brink**; **Eidman**; **Herold** (1); **Lehmann** (1); **Olivier** (1) (2); C. Europe, **Serafiński**; E. Europe, **Serafiński**; European alps, **Couturier**.

British Isles.—**Backhouse**; **Burton, M.** (2); **Evans & others** (1); **Neal**; **Shorten**; **Stephens**.

England.—**Whitehead**; S. England, **Neal & Harrison**; Kent, **Harrison, D. L.** (3); Surrey, **Groves**; Hampshire, **Rowe**; Isle of Wight, **Shepard**; New Forest, **Hook**; Dorset, **Anon** (10); **Gooch**; Clapham; Scilly Isles, **Davies** (1); **Lundy, Anon** (11); **Chilterns, Cowdy**; Hertfordshire, **Davis & Lloyd-Evans**; **Kingsbury**; **Leutscher**; Berkshire, **Miller, R. S.** (1); **Oxon & Berks., Southwick**; Oxfordshire, **Southern** (2); Gloucestershire, **George**; **Humphries**; Worcester-

shire, Pickvance; Suffolk, Cranbrook & others (1) (2); Gilbert & Stebbings; Jewell; Thurlow; N. Suffolk, Anon (8); Norfolk, Anon (9); Bagnall-Oakely & Taylor Page; Lincoln, Norris; Nottinghamshire, Morris, B.; Staffordshire, Dutton; Yorkshire, Hazelwood; Durham, Ashby.

Wales.—Cadman; Miles; W. Wales, Lockley; Caernarvonshire, Morris, B.

Scotland.—Barnett (1); Delany; Godfrey (1); Hewson (1)(2); Argyll, Boyd, J. M.; Stirlingshire, Charles; Scottish coastal islands, Godfrey (2) (3); Hebrides, Godfrey (1); Inner Hebrides, Weir; Islay, Hawthorn & Duckworth; Orkney, Rendall.

Channel Isles.—Cranbrook & Crowcroft.

France.—Koch & Vasserot; Rothschild; Saint-Girons & Deboutteville; Sluiter & Heerdt; S. France, Schloeth (1) (2); Strinati & Aellen; Tupinier; Côte-d'Or, Constant; Pyrenees, Saint-Girons (1) (2).

Spain.—Fernandez-Galiano; Harrison, D. L. (2); Balearic Islands, König.

Portugal.—Fernandez-Galiano.

Holland.—Bruijns; Deinse & Verhey; Feen; Halm; Horst & Nieuwenhoven; Rab; Wijngaarden (1); Wijngaarden & Lensink; Wijngaarden & Schuilenburg; Vries; Vries & Wijngaarden; Limburg, Wijngaarden (3); Utrecht, Heerdt & Sluiter.

Belgium & Luxemburg.—Feen; Frech kop (1); Luxembourg, Heuertz.

Germany.—Altner; Becker; Bopp (2); Eppe; Ernst; Gersdorf (2); Herter (1); Koeppen; Krumbiegel; Lehmann (3); Petzsch (2); Piechocki; Pfützenreiter; Psenner; Reichstein & Kulicke; Richter (1) (2) (3); Schober; Schuller; Tembrock (1); Tratz (2); Wachtendorf; Zänkert; Zimmermann & others; Zippelius (2); N. Germany, Zeeb; W. Germany, Lehmann (5); Schmidt; Bavaria, Kahmann (1); Hanover, Gersdorf (1); Heligoland, Vauk; Borkum Island, Haltenorth (1).

Austria.—Bauer; Kepka; Koenig; Wettstein; Wettstein-Westersheimb (1) (2).

Czechoslovakia.—Dudich; Hanák; Janda; Jirsik; Sladek; Turček (1) (2) (3).

Switzerland.—Bopp (1); Burckhardt (2).

Italy.—Dinale; Hagen; Mirigliano (2); Tortonese.

Rumania.—Ausländer & Hellwing (1) (2); Calinescu; Calinescu & Bunescu; Dumitrescu; Ghetie & Dinu; Hamar; Marches; Saulescu; Topciu & others; Witting.

Bulgaria.—Markov (1) (2); Peshev.

Hungary.—Kolosváry.

Yugoslavia.—Djulić (2) (3); Croatia, Djulić (1).

Poland.—Bazan - Kubik; Buchalczyk; Cabon (1) (2); Jaczewski (1); Krzanowski; Mocarski & Gedyminowa; Pucek; Serafinska & Serafinska.

Denmark.—Schleswig-Holstein, Requate; Funen Is., Runge.

Esthonia.—Aul & others; Masing; Paaver, K. L.; Poots.

Finland.—Kaikusalo & Skarén (1) (2); Pynnönen.

Scandinavia.—Hattorn; Quarles; Reinwaldt (2); Sweden, Curry-Lindahl (1) (3); Lapland, Manker.

U.S.S.R.—Bannikov (4) (6); Baranova; Kulik; Nasimovich; Novikov; Shnitnikov; Skrobov; Vinogradov; Russia, Dahl & others; Likhachev; Strelkov; Ukraine, Abelentzev & Pidoplichko; W. Ukraine, Pakizh; Caucasus, Schneider (2); Stroganova; Vereshchagin & Burchak-Abramovich; Azerbaijan, Akhundov & Alekperov; Alekperov; Crimea, Yanushko; Belorussia, Pyatrovski; Fergana, Malenkov; W. Dzungaria, Vorontsov (3); Betpak-Dala desert, Ismagilov; Tien-Shan Mts., Bibikov; Mongolia, Bannikov (1) (2) (3); Turkistan, Beishebaev; Dementiev (2); Kalabukov & others; Latychev & Sidorkine; Severtsov; Kara-Kum, Kotov (1); Ryyan, Kozlov; Daghestan, Siroechkovski; Kazakhstan, Bazhanov; Kryltsov; Obokazakhstan, Bazhanov; Kryltsov; Obolensky; Siberia, Fetisov (1) (2); Marikovski; Stroganov (1) (2) (3) (4); Stroganov & Turyeva; C. Siberia, Reimers; E. Siberia, Fetisov (3); Pavlynenchenko.

S.W. Asia.—Palestine, Bodenheimer; Arabia, Caram & Petter; Iraq, Harrison, D. L. (1); Reed; Persia, Haltenorth (3).

China.—Herold (1); Sosnovsky (2); Quelpart Island, Won & Woo, H. C.; Dagelet Island, Korea, Won & Woo, H. J.

Japan.—Kobayashi; Kuroda (1) (2); Kuroda & Ishiwata; Nakata & Ito; Nishiwaki & Kamiya (1) (2) (3); Pohl; Shimoizumi; Udagawa; Kurile Is., Klumov (1) (2).

North Africa.—Kirchshofer; Morocco, Dorst & Panouse (1) (2); Tunisia, Kahmann (2); Müller, H. P.

ORIENTAL REGION

India.—Ali & Santapau (1); Anon. (3); Chaturvedi; Gee (1) (2); Grzimek (4); Khajuria (1) (2) (3); Shebbeare (2); Singh; Pakistan, Akhtar (1) (2); Rajasthan, Prakash; Bengal, Avari; Jaldapara Game Sanctuary, West Bengal, Avari; Nepal, Sheppard; Kashmir, Khajuria (4); Himalayas, Cobb; Mani.

Ceylon.—Deraniyagala (2); Morgan-Davies; Soysa; Wienman; Williams, J. H.; Maldive Islands, Phillips (1) (2); Hill, J. E. (1).

Burma.—Moore (1).

Thailand.—Moore (1).

Cambodia.—Wharton.

Malaya.—Adams, W.; Harrison, J. L. (1) (2) (3); Ogilvie (1) (2).

Indonesia.—Hill, J. E. (2); Oey & Feen; Malaysia, Grzimek (4); East Indian Islands, Moore (4); Borneo, Hill, J. E. (2); North Borneo, Wade; Sarawak, Davis, D. D. (2); Harrison & Jamuh; Java, Hooijer (1); Schuurman; Meeuwen Island, Java, Hoogerwerf; Bali, Meissner; Celebes, Moore (2); Celebes and adjacent islands, Mohr.

AUSTRALASIAN REGION

Australia.—Dunnet (1); Felten (4); Mackerras; Mykytowycz (1); Storr; Troughton; W. Australia, Barker; Dunnet (3); Glauret (1) (2); C. Australia, Finlayson (1); S. Australia, Finlayson (2); Victoria, Brazenor; McNally; New South Wales, Marlow (3) (4); Myers (2); Mykytowycz (2); Mykytowycz & Rowley; Queensland, Dunnet (4); Fleay (1) (2); Northern Territory, Finlayson (3); Tasmania, Davies & Guiler; Guiler (1) (2); Guiler & Meldrum; Rowley (1) (6).

New Guinea, etc.—Brongersma; Husson; Marlow (1); Van Deusen & Peterson; Netherlands New Guinea, Husson & Rappard; New Caledonia, Barrau & Devambez.

New Zealand.—Fennessy; Mason.

ETHIOPIAN REGION

General.—Ansell (2) (3); Backhaus (1); Blancou (2); Boettger; Bourlière; Dekeyser & Derivot; Dorst (2); Faulkner & Epstein; Fraser Darling; Grzimek (4); Kulzer; Ulmer.

N.E. Africa.—Sudan, Micha; Nabi; S.E. Egypt, Hoogstraal & others; Ethiopia, Scott, H.; Starck & Frick.

East Africa.—Anon. (13); Hesse; Kenya, Anon. (14); Backhaus (2); Cowie; Fleetwood; Harrison & Fleetwood; Uganda, Anon. (16); Bere (1) (2); Buechner; Cleave; Haddow (1) (2); Heppes (1); Micha; West Nile, Heppes (2); S.W. Uganda, Baumgartel (1) (2); Donisthorpe; Tanganyika, Chapman; Eisentraut; Grzimek (5); Halcrow; Harrison, D. L. (5); Lamprey; Swynnerton; Swynnerton & Hayman; Serengeti, Bigalke (3).

Rhodesia.—N. Rhodesia, Ansell (1); Dorst (1); Grimwood & others; Larson; Southern Rhodesia, Fraser, A. D.; Turnbull-Kemp.

Southern Africa.—Bigalke (1); Fitzsimons; Hughes; Meester (2); Skead (1); Zumpt; Union of South Africa, Knobel; Cape, Anon. (12); Cape Province, Skead (2); Knysna Forest, Hey & Brand; Woods, D. H.; Kalahari, Bolwig; Davis, D. H. S.; Transvaal, Allanson; Ewer (3); Innis; Kettlitz; Meester (4); Roberts; Kruger National Park, Bigalke (2); Zululand, Meester (3); Ripley; South West Africa, Bigalke (5); Angola, Frade (1) (2).

Belgian Congo.—Anciaux de Faveaux; Baumgartel (2); Heim de Balsac (1); Holz; Jobaert (1) (2); Micha; Piriot (1) (2); Tappen; Verheyen; Verschuren (2); Garamba National Park, N.E. Congo Verschuren (1).

Central Africa.—Blower (1); Petter.

West Africa.—Booth, A. H. (1) (2) (4); Spanish Guinea, Grzimek (3); Sabater Pi & Lassaletta; French African Territories, Bourgoin; French Cameroons, Aellen & Perret; Jeannin & Barthe; Schultz (1); Voelckel; French Equatorial Africa, Blancou (1) (3) (4); Bonotte; Malbrant & Quijoux; Nigeria, Bowman; Harrison, D. L. (4) (6); Sikes; Taylor; Togoland, Baudenon (1) (2); Ghana, Ansell (1); Booth, A. H. (3); Booth, C. P.; Liberia, Hayman (1);

Novick (1); Schultz (2); Ivory Coast, Heim de Balsac & Aellen; French West Africa, Cadenat (1); Dekeyser (3); Fraser, F. C.; Mt. Nimba, French Guinea, Heim de Balsac (2); Heim de Balsac & Lamotte; Gambia, Dekeyser (2); Portuguese Guinea, Sa e Melo Cristino; Senegal, Cadenat (2); Cadenat & Doutre; Dekeyser (1); Sahara, Delevil; S. Sahara, Villiers; São Tomé and Príncipe Islands, Frade (3).

Madagascar.—Caram & Petter; Petter & Petter-Rousseaux.

NEARCTIC REGION

General.—Herskovitz (1); Lehmann (2); Van Gelder (1); N. America, Beidleman; Dearden, L. C.; Hagmeier; Hoover (2); Koopman (3); Lincoln; McHugh; Scheffer (3); Simpson, R. De E.; Tamsitt; White, R. B.; Van Gelder (2); W. North America, Swift.

Greenland.—Degerbol; E. Greenland, Vibe.

Canada.—Banfield; Cameron (1); Canadian arctic, McLaren (1) (2); Ontario, Burton, D. E.; De Vos; Frith; Quebec, Banfield & Tener; Labrador, Banfield & Tener; Newfoundland, Dodds; Dearden, J. C.; New Brunswick, Cameron (3); Prince Edward Island, Cameron (2); Islands of Hudson Bay, Burt; Manitoba, Sutton; British Columbia, Edwards, R. Y.; Munro; Pike & Maxwell; Ritcey & Edwards; Graham Island, Dickie; N.W. Territory, Moody.

U.S.A.: General.—Buchanan, G. D.; DePuy.

Eastern U.S.A.—East U.S.A., Cook & Hamilton; Guilday (2); New York, Benton; Benton & Scharoun; Eadie & Hamilton; Jex; Hamilton (1) (2) (3); Nichols; Rémillard; Maryland, Wilber & Robinson; Massachusetts, Clark, E. S. (1) (2); New Hampshire, Teeri & others; Kilham (2); N. Carolina, McKeever; Pennsylvania, Creed & Sharp; Guilday (1); Rémillard; Virginia, Paradiso; New England, Grayce; Maine, Teeri & others; Wood, A. S.; Florida, Burns & Burns; Jennings; Kellogg; Layne & Woolfenden; Georgia, Constantine (1); Lowe; McKeever & others; Smith, W. W.; Tomkins; Wood, J. E..

Middle U.S.A.—Missouri, Conaway (2); Korschgen; McLaughlin; Michigan, Butsch (1) (2); Fouch; King; Manville (1); Rood (1) (2); Verme; Youatt & Erickson; Wisconsin, Conaway & Landry; Iwen (1) (2); Karpuleon; Louch; McCabe & Keith; Kentucky, Craft & others; Ohio, Craft & others; Negus; Smith & Goodpaster; Indiana, Cope & others; Mumford; Mumford & Cope; Wilson, N.; Alabama, Batson; Iowa, Polder; Johnson & Hendrickson; Illinois, Hall & Davis; Klimstra & Corder; Parmalee; Pietsch; Stains; S. Illinois, Layne (2); Minnesota, Beer & others; Liers.

Western U.S.A.—W. U.S.A., Pfeiffer; Washington, Bacon & Drake; Broadbrooks (1) (2); Scheffer (2); S. Dakota, Packard (3); Arkansas, Redman & Sealander; Nebraska, Jones (1) (3); Rapp; Sather; Velich; Montana, Conaway (1); Jones (3); Kilham (1); Utah, Hayward & Killpack; Robinette; Shippee & Egoscue; Kansas, Anderson & Nelson; Bronson & Tiemeier; Fitch; Hays (2); Smith, R. E.; Van Gelder (3); Oklahoma, Glass (1) (2); Hays (1); Colorado, Beidleman & Weber; Finley; Lechleitner; Miller, R. S. (3); Thorne (2); Youngman; Nevada, Robinette; Wyoming, Altmann; Jones (3); California, Dasmann & Hjersman; Grim; Gunther; Hawbecker; Hoffman; Houck; Hughes & Mall; Jordan; Kitts; Lechleitner (2); Taber & Dasmann; Tullar; Texas, Buchanan, O. M.; Constantine (4) (6); Cutter (1) (2); Glass (1); Herreid; Kennerly (1) (2); McCarley; Arizona, Hanson; Reynolds; Walker, L. W.; New Mexico, Constantine (2) (5); Findley & Pullen.

Alaska.—Libby; Mossman, A. S.; Musacchia; Pruitt & Lucier (2); Williams, R. B.; N. Alaska, Butterworth; Kodiak Islands, Clark, W. K.; Kramer.

Mexico.—Baker (1) (2); Jones & Anderson; Koopman (3); Constantine (3); Davis, W. B.; Goodwin (1); Packard (1) (4); Villa R. (2); S. Mexico, de la Torre; Pueblo, Warner & Beer; Durango, Drake; Guerrero, Davis & Lukens; Gulf of California, Norris & McFarland.

NEOTROPICAL REGION

General.—Herskovitz (1) (5); N. and S. America, Sanborn & Crespo.

C. America and West Indies.—El Salvador, Felten (1) (2) (3); Nicaragua, Packard (2); Guatemala, de la Torre; Packard (2); West Indies, Bond & Seaman; Bahama Islands, Moore (3); Cuba, Koopman (2); Greater Antilles, Koopman (1); McDowell; Antilles, Morice; Trinidad, Goodwin (2); Coastal islands of N. South America, Koopman (1).

South America.—C. and S. America, Goodwin (3); S. America, Cabrera (1); Eckardt; Hershkovitz (2) (3); Mondolfi & Medina Padilla; Pearson; Rohrs (1); Thenius & Burgl; Thomas, L.; French Guiana, Hill, W. C. O. (1); Colombia, Borrero-H. & Hernandez-C.; Hershkovitz (4); Brazil, Kuenzi; Kühlhorn (2); Ruschi; Amazon, Layne (1); Matto Grosso, Kühlhorn (1); Peru, Bendezu; Dorst (3); Harland; Housse; Scheffer (3); Paraguay, Kühlhorn (1); Tour; Uruguay, Vaz Ferreira; Argentine, Cabrera (2); Crespo; Obrog; Tour; Tour & Finsterbusch; Chile, Mann; Tour & Finsterbusch.

OCEANS, SEAS AND OCEANIC ISLANDS

Arctic, Uspenski; Vaigachev; Northern Seas, Jönsdard; N.W. Atlantic, Sergeant; Northern Pacific, Miyazaki (2); Nasu; Nishiwaki & others (1) (2); Ohsumi & others; Omura (1); Seki; Uda & Suzuki; Wilke & Nicholson; East China Sea, Miyazaki (1); Japanese coastal waters, Nishiwaki & Handa; Ohsumi; Bering Sea, Ichihara; Antarctica, Laws (1) (2); Chittleborough (2); Cockrill; Nemoto & Nasu; Nishiwaki & others (2); Bellingshausen Sea, Symons & Weston; Baltic, Ropelewski; Black Sea, Marcoci & Popa (1) (2); Gulf of Tunis, Postel; Red Sea, Gohar; Indian Ocean, Brown, S. G. (1); Caribbean, Coram & Petter; Azores, Clarke; Pribilof Islands, Nagasaki & Matsu-moto; Macquarie Island, Csordas; South Orkney Is., Mansfield; S. Georgia, Bonner (1) (2) (3).

GEOLOGICAL (FOSSIL FAUNAS)

Fluorine content dating method, Danilova & Alexeev.

Rhaetic.—Glamorgan, Kühne.

Jurassic.—S. Wales, Kermack & Mussett; Europe, Friant (5); N. America, Friant (5); Kermack & Mussett.

Cretaceous.—N. America, Friant (5).

Caenozoic.—Pennsylvania, Hibbard, C. W. (3).

Tertiary.—Europe, Hrubesch; Austria, Thenius (1); Jugoslavia, Petronijević & Thenius (1); Odessa, Gritzai; USSR, Alexeeva; Kazakhstan, Bazhanov & Kostenko; Bazhanov & others; Vorobeichik; Australia, list of Tertiary marsupials Gill; Victoria, Stirton (2); North America, Dawson, M. R.; Alberta, Russell, L. S. (2); Florida Ray (1); S. America, Patterson (2).

Paleocene.—France, Friant (5); N.W. Sahara, Gauthier-Pilters; N. America, Friant (5); Alberta, Russell, L. S. (1); Colorado, Patterson & Simons; Wyoming, Dorr (1); New Mexico, Wilson, R. W.

Eocene: Old World.—Belgium, Misonne; Spain, Crusafont Pairo (3); Germany, Malthes; China, Woo & Chow; Shantung, Chow (2); Yunnan, Chow (3).

Eocene: New World.—North America, Gazin (2); Utah, Gazin (1); Wyoming, Dorr (2); Wood; Patagonia, Patterson (2); Simpson, G. G.

Oligocene.—Belgium, Misonne; S.W. France, Astre (5); Bavaria, Oettingen-Spielberg; Jugoslavia, Petronijević & Thenius (2); Patagonia, Patterson (1).

Miocene: Old World.—France, Bergounioux & Crouzel (2); Crouzel & Debeaux; Rey; Belgium, Misonne; Spain, Crusafont Pairo (1); Crusafont & Truyols Santonja (1); Truyols Santonja; Portugal, Zbyszewski; Austria, Mottl; Poland, Ryziewicz (2); Russia, Gadzhiev; Ukraine, Korotkevich; Moldavia, Eberzin & Sainov; Caucasus, Gabuniya (2); Kazakhstan, Bazhanov & Nurumov; Kamchatka, Pronina; Algeria, Arambourg (3); E. Africa, Whitworth; Uganda, Bishop.

Miocene: New World.—Western North America, Shotwell; Florida, Olsen (1) (2); S. Dakota, Green, M.; Wyoming, Black; Nevada, Reed & Downs; Colorado, Galbreath (1).

Pliocene: Old World.—Eurasia, Kurtén (2); Belgium, Misonne; Spain, Aguirre; Bergounioux & Crouzel (3) (4) (5) (6); Roumania, Macarovici; Poland, Czyzewska (2); Yunnan, Hu & Hu; Woo (1) (2); Shansi, Chang; S. Australia, Stirton (1).

Pliocene: New World.—Western N. America, **Shotwell**; Oklahoma, **Kitts**; Texas, **Kitts**; Wyoming, **Hibbard, C. W. (3)**; Montana, **Konizeski**; Mexico, **Mooser Barendun**; Argentine, **Pascual**; **Reig**.

Pleistocene, Old World: Europe.—Europe, **Herold (1)**; **Kurtén (1)**; N. Europe, **Kurtén (3)**; Devon, **Carreck**; Glamorgan, **Greenaway**; Suffolk, **Spencer (1) (2) (3)**; France, **Abrard**; **Astre (1) (2) (3) (4)**; **Friant (8)**; Spain, **Villalta Comella & Crusafont**; Belgium, **Misonne**; Holland, **Hooijer (3)**; **Kruizinga**; Italy, **Cadeo**; **Castiglioni**; **Mirigliano (1)**; **Radmilli & others**; Germany, **Dietrich (2)**; **Kahlke (2)**; **Lörcher**; **Rutte**; **Tobien**; N. Germany, **Guenther**; S. Germany, **Heiler (1) (3)**; W. Germany, **Kahlke (1)**; Austria, **Thenius (2)**; Hungary, **Remenyi**; Roumania, **Apostol (1) (2)**; Czechoslovakia, **Bručková (1) (2)**; **Musil**; **Ryziewicz (1)**; Greece, **Psarianos**; **Psarianos & Thenius**; Euboea Is., Greece, **Mitzopoulos**; Schleswig-Holstein, **Requate**; Poland, **Czyżewska (1)**; **Kowalski, K. (1) (2)**; **Ryziewicz (3)**; Esthonia, **Paaver, K.**

Asia.—Asia, **Deraniyagala (1)**; U.S.S.R., **Ghoretzki**; **Goretzki**; S. Russia, **Kurtén (5)**; Ukraine, **Tatarinov (1) (2)**; **Topachevsky**; Yakutia, **Dubrovo (2)**; Kazakhstan, **Balin**; **Khisarova**; **Kojamkulova**; **Makarova**; Siberia, **Cop-pens**; N.E. Siberia, **Dubrovo (1)**; W. Siberia, **Belyshev**; R. Lena, Russia, **Alexeev**; China, **Chow (1)**; **Herold (1)**; **Hsu & others**; **Kahlke & Hu**; **Koenigswald**; S. China, **Heberer**; Honan, **Chow & Hsu**; Liaoning, **Chow & Hsieh**; Japan, **Hasegawa**; **Nakajima**; Punjab, **Hooijer (5)**; Israel, **Hooijer (2)**; Sumatra, **Hooijer (5)**; Java, **Hooijer (1) (5)**; Australia, **Woods, J. T.**

Africa.—Algeria, **Arambourg (1)**; Morocco, **Ennouchi**; Kenya, **Leakey (1)**; **Leakey & Whitworth**; Tanganyika, **Leakey (1) (3)**; **Leakey & Whitworth**; S. Africa, **Singer & Hooijer**; Transvaal, **Ewer (1)**; **Graff**; **Greenwood**; Orange Free State, **Hooijer (4)**.

Pleistocene: New World.—N. America, **Hibbard, E. A.**; **Hibbard, C. W. (2)**; Great Lakes, **Quimby**; Michigan, **Hibbard, E. A.**; Kansas, **Galbreath (2)**; **Hibbard, C. W. (3)**; Idaho, **Hibbard, C. W. (1) (3)**; Indiana, **Turnbull**; Arizona, **Quinn**; Florida, **Auffenberg**; **Olsen (3)**; **Ray (3)**; Mexico, **Jakway**; **Jones (2)**.

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In the arrangement of the Orders of the Mammalia, Simpson's classification and terminology in his "The Principles of Classification and a Classification of Mammalia," 1945, have been adopted.

†ORDER *incertae sedis*

Unnamed humerus from Miocene, Nevada, descr., fig., **Reed & Downs**.

ORDER MONOTREMATA

Monotreme morphology and physiology in relation to mammalian evolution from reptiles, **Carter, G. S.**

Monotreme anatomy and physiology, **Murray**.

ORNITHORHYNCHIDAE

Ornithorhynchus anatinus rearing in captivity, **Crandall**; diet, longevity in New York Zoo, **Manville (2)**; account of capture and transport in captivity, **Fleay (1) (2)**.

†ORDER MULTITUBERCULATA

Mandibular dentition of multituberculates, descr., illustr. compared with marsupial dentition, **Friant (5)**.

†PTILODONTIDAE

†Ptilodonts from Paleocene of Alberta, descr., **Russell, L. S. (1)**

†*Ectypodus* (?) *macrotomeus* sp. nov. Paleocene, head of Kimbetoh Arroyo, San Juan County, New Mexico, p. 77, **Wilson, R. W.**

†ORDER TRICONODONTA

†*Morganucodon watsoni* Rhaetic, Glamorgan, dentition described, systematic position, **Kühne**.

†ORDER PANTOTHERIA

?ORDER DOCODONTA

†Eupantotheria new name for Order Pantotheria, raised to infra-class, p. 213, **Kermack & Mussett**.

†Eotheria new subclass for Order Docodonta, p. 212, **Kermack & Mussett**.

†Docodonta study of jaw articulation, redefinition of order, p. 212. **Kermack & Mussett**.

†*Morganucodon* (?) additional material descr., illustr., **Kermack & Mussett**.

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Behaviour studies of marsupials, **Hediger**.

Development of marsupial brain, **Hill & Watson**.

Australian marsupial fauna evolution, extinction not due placental competition, **Storr**.

Marsupials of New South Wales, descr., distr. status and conservation, **Marlow** (3).

Marsupials of El Salvador, **Felten** (3). Rete mirabile in marsupial spermatocord, **Barnett & Brazenor**.

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Chironectes minimus distribution, habits, morphology, **Mondolfi & Medina Padilla**.

Didelphis general account, *D. marsupialis* habits, behaviour, **Thomas, L.**; *D. azarae* descr., reproduction, food and habits in Peru, **Housse**; *D. marsupialis virginianus* range extension in Kansas, **Anderson & Nelson**; prehistoric distribution, **Guilday** (2); distribution, biology and economic significance in New York, **Hamilton** (1); reproduction in Florida, **Burns & Burns**; experimental sex reversal in gonads, **Burns**; *D. paraguayensis* body-organ weight relation, **Kühlhorn** (2).

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†NECROLESTIDAE

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Trichosurus caninus, *T. vulpecula* damaging pines in Victoria, **McNally**; *T. v.* live-trapping population study, **Dunnet** (1); foods in New Zealand, **Mason**.

†*Wynyardia bassiana* stratigraphical history, **Gill**.

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Bettongia lesueuri history, distribution, habits, morphology, taxonomic status in C. Australia, *B. penicillata* first record C. Australia, history, distribution, habits, taxonomy and subspecific differentiation, *B. p. francisca*, *B. p. anhydra* additional description, **Finlayson** (1).

Dendrolagus ursinus, *D. leucogenys* taxonomic status, feeding and arboreal habits, **Husson & Rappard**.

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†*Palorchestes azael* Pleistocene, *P. parvus* possibly Pliocene, Australia, both redescribed and figured, comparative study, **Woods, J. T.**

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Notes on Finnish insectivores, **Kaiku-salo & Skarén** (2).

Insectivores of Siberia, **Stroganov** (4).

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Insectivora of Mt. Nimba Reserve, French Guinea, **Heim de Balsac** (2).

Insectivore brain, comparative study, **Stephan**.

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†*Palaoryctes* redescription, **McDowell**.

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†*Clinopternodus* compared with *Solenodon*, **McDowell**.

†*Micropternodus* compared with *Solenodon*, **McDowell**.

Solenodon craniological and odontological study, taxonomic position reviewed, **McDowell**.

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Rhynchocyon cirnei reichardi first Tanganyika record, **Swynnerton & Hayman**.

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†*Dinopithecus brumpti* Arambourg a synonym of *Simopithecus oswaldi*, Leakey & Whitworth.

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†*Atlantropus* significance in human evolution, Arambourg (1).

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†*Megatherium* and *Megalonyx* history of discovery, role of Thomas Jefferson, Boyd, J. P.

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†*Cervus elaphus antiquus* Pleistocene, Haute Garonne, descr., **Astre** (4).

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†*Cervus (Rusa)* from Pliocene, Yunnan, **Hu & Hu**.

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†*Stephanoceros brevistephanos* sp. nov. Miocene, right bank R. Tchagirlidynhlanchik, Kazakhstan, p. 14, **Bazhanov & Nurumov**.

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†*Bos primigenius* skull fragment from Poznań descr., illustr., **Moczarski & Gedyminowa**; historical notes, **Dementiev** (1); beaker made from horn, **Tratz** (1); *B. primigenius*, *B. brachyceros europaeus* Pleistocene, Czechoslovakia, measured, compared, **Brůčková** (1); *B. priscus* descr., record from Seine-et-Oise, France, **Abrard**.

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†*Epileptobos groeneveldtii* additional material descr., discussed, compared, **Hooijer** (5).

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†*Gazella* sp. in Miocene of Russia, **Gadzhiev**.

†*Hemibos triquetricornis*, *H. acuticornis* additional material descr., **Hooijer** (5).

†*Hesperoceras* gen. nov. for type species *H. merlae* sp. nov. Pleistocene, Villaroya, Logrono, Spain, p. 426(?), **Villalta Comella & Crusafont**.

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†*Leptobos* sp. nov.? Pleistocene, Bethlehem, Israel, descr., illus., p. 285, **Hooijer** (2); *L. dependicornus* a synonym of *Bibos palaeosondaicus*, **Hooijer** (5).

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†*Spirocerus* cf. *kiakhtensis* Pleistocene, Liaoning, Manchuria, descr., fig., **Chow & Hsieh**.

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